Claims.

1. Method for quality assurance of screw joint tightening results when tightening a screw joint to a needed pretension condition (F_N) by means of a torque delivering power tool,
c h a r a c t e r i z e d by

- one or more simulation procedure of a screw joint tightening process via a specific algorithm aiming at said needed pretension condition (F_N) by using programmed data concerning the screw joint geometry, expected frictional conditions, operational characteristics of the power tool, a chosen tightening strategy, and adaptable values of at least one tightening parameter, thereby arriving at a simulated pretension condition (F_S) acceptably close to said needed pretension condition (F_N),
- performing in practice a screw joint tightening process by controlling the power tool in accordance with said chosen tightening strategy and aiming at said needed pretension condition (F_N) by using said specific algorithm as well as programmed data concerning said screw joint geometry, said operational characteristics of the power tool, and tightening parameter values as derived from said simulation procedure, thereby arriving at a practically processed pretension condition (F_P),
- comparing said practically processed pretension condition (F_P) with said simulated pretension condition (F_S), and
- evaluating the outcome of said comparison for quality acceptance or refusal.

2. Method according to ~~claim 1, wherein said simulation procedure is repeated a number of times and~~ based on a method randomly choosing values of said data within standard deviation ranges, thereby obtaining a mean value and a deviation range of said simulated pretension

condition (F_S), and said practically processed pretension condition (F_P) is compared to the limits of said deviation range for obtaining acceptance or refusal of said practically processed pretension condition (F_P).

3. Method according to claim 1 or 2, wherein said simulation results also includes parameter values of torque (T), angle of rotation (A) and torque rate (dT/dA) obtained at the simulated pretension condition (F_S), and the practically obtained parameter values are compared to the parameter values obtained at simulation.

4. Method according to claim 2, wherein the practical tightening process is performed repeatedly, and the value of all resultant practically processed pretension conditions (F_P) are compared and statistically evaluated both with regards to the limits of said deviation range and to said mean value of said simulated pretension condition (F_S).

5. Method according to anyone of claims 1-3, wherein resultant practically processed pretension conditions (F_P) falling outside the limits of said deviation range are analysed by tightening and loosening of a screw joint of the actual type, thereby determining whether there is a frictional or geometrical influence that has caused such unacceptable deviation of said practically processed pretension condition (F_P).